

**IN THE ABSTRACT:**

Please amend the abstract as follows:

The invention concerns a particle ~~(10, 10a)~~ having a code from a library of codes embedded in its physical structure by refractive index changes between different regions of the particle. In preferred embodiments, a thin film possesses porosity that varies in a manner to produce a code detectable in the reflectivity spectrum. An assay detection method uses such a particle and detects a spectral shift in the presence of an analyte. Additional embodiments are disclosed including additional features.